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EXAMINER

KORNAKOV, MICHAEL

ART UNIT	PAPER NUMBER
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1746

DATE MAILED: 04/10/2002

4

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n No.

09/700,704

Examiner

Michael Kornakov

Applicant(s)

HIROTA ET AL.

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-- The MAILING DATE of this communication app ars on the cover sh et with the correspondenc address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 November 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) 10-12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☒ Claim(s) 10-12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Objections

1. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claims 3-13 have been renumbered.

2. Claims 10-12 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend on other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims 10-12 have not been further treated on the merits.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The recited " with an alkali metal content less than 10 ppb" constitutes an indefinite subject matter because it is not readily ascertainable as what this content of

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alkali metal refers to: to a surfactant or to a cleaning composition. Clarification and/or correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1,4 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by EP 0 081 355 .

EP'355 discloses a method of cleaning and reclaiming printing screens, which provide synergistic activities. EP'355 provides cleaning compositions, which **contain N-methyl-2-pyrrolidone**, an oxygenated solvent, such as **butyl cellosolve (synonym for ethylene glycol monobutyl ether)** and cyclohexanone, **and a surfactant**. The compositions meet health and safety standards due to their biodegradability, lack of flammability and high threshold limit values (see abstract).

With regard to claims 4 and 6, EP'455 teaches the presence of a surfactant, about 1 to 5%; **about 30-85% of N-methyl-2-pyrrolidone and about 10-35% of oxygenated solvent (butyl cellosolve)**. (claim 9, and Examples 1, page 14). These values are within the range of the instant claims 4 and 6.

With regard to an alkali content in an otherwise known composition as well as its intended use, since EP'355 utilizes the same ingredients in the same amounts as

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instantly claimed, therefore the composition will inherently possess all the properties as instantly claimed.

The above rejections were made in view of *In re Fitzgerald* or *In re Spada*, 911 F.2d 705, 709 15 USPQ 1655, 1658 (Fed. Cir. 1990), which settles that when the claimed compositions are not novel, they are not rendered patentable by recitation of properties, whether or not these properties are shown or suggested in prior art. With regard to the intended use of a composition, which is incorporated into preamble it is noted, that the prior art reference disclosing the composition need not disclose a utility to defeat patentability under 35 U.S.C. § 102. *In re Schoenwald*, 964 F.2d 1122, 1123-1124, 22 USPQ 2d. 1671, 1672-1673 (Fed. Cir. 1992).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

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4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
10. Claims 2, 3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP'355 in view of Griesshammer (U.S. 4,156,619).

EP'355 does not specifically disclose the use of fluorine containing surfactant. However, EP'355 clearly suggests that any kind of surfactant, namely cationic, anionic or nonionic is equally operable in his invention.

Griesshammer discloses a process for cleaning semiconductor discs by immersing the discs in a solution containing non-ionic or anionic surfactant (see abstract). The aqueous solution suitably contains from 0.3 to 5%, preferably from 0.8 to 1.5%, by weight of the cationic surfactant based on the weight of the solution. Suitable cationic surfactants are, for example, amine salts, quaternary ammonium salts, and fluorine-containing surfactants based on fluorohydrocarbons, or amphoteric surfactants according to their partly cationic character (see col. 2, lines 28-39).

Therefore, based on the suggestion of EP'355 one skilled in the art would have found it

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obvious to employ the fluorine containing surfactants of Griesshammer in the cleaning composition of EP'355 in order to impart hydrophobicity to the object and/or to ensure better dissolution of halogen containing contaminants ("like dissolves like"), and thus to arrive at the claimed composition.

EP'355 does not disclose a presence of water in his disclosure, as per instant claims 2 and 3.

Griesshammer discloses water based composition containing 30-100% of non-ionic, preferably fluorine containing surfactant for cleaning semiconductor discs.

Therefore the content of solvent (water) in Griesshammer's composition may be from 0-70%.

Although EP'355 suggests non-aqueous composition, it further provides the cleaning method, wherein the second step includes vigorous washing with water (see, for example, page 17, lines 11, 12). It is further suggested by EP'355 that the presence of N-methyl-2-pyrrolidone in pretty high concentration sensitizes emulsion for subsequent removal with water rinsing.

Therefore, motivated by EP'355 a person skilled in the art at the time the invention was made would have found obvious to utilize water as taught by Griesshammer in a composition of EP'355 to eliminate the second step of water rinsing and to ensure the cleaning and removal of emulsion in one step.

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11. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Han et al (U.S. 5,102,573) in combination with EP' 355.

Han discloses liquid, **caustic-free**, compositions that remove baked-on food residues from hard surfaces, which comprise:

a) from about **1 to 40%**, of a surfactant selected from the group consisting of anionic surfactants, nonionic surfactants and mixtures thereof; b) from about 1 to 10% of a builder selected from the group consisting of polyphosphates, pyrophosphates, citrates, carbonates, and mixtures thereof; c) . from about 0.2% to 2% of an amine selected from the group consisting of monoethanolamine, diethanolamine, triethanolamine and mixtures thereof; d) **water**; and e) further comprising from about **3 to 50%** of a solvent, which solvent is selected from the groups consisting of: i) sulfolane, propylene glycol monomethyl ether acetate, dipropylene glycol monomethyl ether acetate, ethylene glycol monoethyl ether acetate, diethylene glycol monoethyl ether acetate, diethylene glycol dimethyl ether, ethylene glycol dimethyl ether, diethylene glycol diethyl ether, and mixtures thereof; ii) **diethylene glycol monobutyl ether**, ethylene glycol monobutyl ether, **and N-methyl 2-pyrrolidone** and **mixtures thereof**; and iii) a mixture of two solvents, the first such solvent comprising 5-17% of an acetate selected from the group consisting of ethyl acetate and n-propyl acetate, and the **second such solvent comprising 15-34% of a solvent selected from the group consisting of acetone, N-methyl 2-pyrrolidone** .

Han does not provide specific ratios with all amounts of ingredients as instantly claimed, however does indicate all the components of a composition, including water.

EP'355 discloses the amounts of N-methyl-2-pyrrolidone, butyl cellosolve and surfactant in the ratios as instantly claimed. Since both references disclose a cleaning composition with superior cleaning properties, one skilled in the art would have found it obvious to adjust the ingredients' content of Han according to EP'355 to ensure its biodegradability, lack of flammability and high threshold limit values, and thus to arrive at the subject matter of the instant claims.

12. Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Griesshammer (U.S. 4,156,619) in view of EP 0 081 355.

Griesshammer discloses a method for cleaning semiconductor discs, the method comprises two basic steps: a) after discs are subjected to polishing operation they are removed and b) immersed in a cleaning solution (see abstract and col. 4, lines 4, 5). The cleaning solution of Griesshammer comprises 30-100% of a non-ionic or anionic surfactant and the rest is organic solvents or water. (col. 2, lines 1,2). As solvents both polar and non-polar solvents can be used. (col. 2, lines 7-10). The temperature of cleaning process is preferably 50-80°C (col. 2, lines 22-23). Polyglycol ethers are utilized by Griesshammer in specific examples 1 and 2 in col. 3

Griesshammer **does** provide the cleaning steps with a surfactant solution in at the same temperature as instantly claimed in both polar and nonpolar solvents, but

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does not disclose the all the specificities of cleaning composition wherein the surfactant is present along such solvents as ethylene glycol monobutyl ether and N-methyl-2-pyrrolidone.

EP'355 discloses the cleaning composition, identical to that as instantly claimed for cleaning as discussed above. Since Griesshammer provides a motivation to use a surfactant solution in both polar and nonpolar solvents for cleaning semiconductor discs, and since both ethylene glycol monobutyl ether and N-methyl-2-pyrrolidone are known to be part of surfactants as well as being conventionally utilized solvents in cleaning processes, a person skilled in the art at the time the invention was made would have found it obvious to employ the solvents of EP'355 in the process of Griesshammer in order to enhance the action of a surfactant and to impart the hydrophobicity to the substrate, as desired by Griesshammer, and thus to arrive at the subject matter of the instant claims.

With regard to the limitations set forth in the preamble to the instant claim 7, which recites that the byproduct to be cleaned derived from a decomposed substance from a process gas containing C and F, it is noted here that, a preamble is not accorded a significant patentable weight since it merely recites the purpose of a process or the intended use of a method, and since the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone, as per *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976)

With regard to the limitations of claim 8, which is concerned with the cage wherein the component to be cleaned is stored, it is noted that this limitation is an

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apparatus limitation, which is not even an apparatus for performing the steps of the cleaning method, and since the operation is known in reference to the object, the invention of a new machine for performing it does not make a new process, but only a new instrument for applying it. *In re Tarezy-Hornoch*, 158 USPQ 141 (CCPA 1968)

Furthermore, structural limitations of apparatus in a process, which is otherwise met by the applied reference(s), are not given a significant patentable weight, unless these structural features present a manipulative difference in a process steps. In the instant case the size of a storage cage, as well as the presence of such cage, does not present a manipulative difference, since the steps of the process as per (reference) can be performed without a cage.

Therefore, combination of references renders the above claims prima facie obvious and properly rejected under 35 USC 103(a).

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Black et al (U.S. 6,090,765) discloses a composition for cleaning hard surfaces comprising butoxyethanol and N-methyl-2- pyrrolidone; McDonell (U.S. 5,573,710) discloses a multisurface cleaning composition comprising a surfactant, and a very slightly soluble organic compound along with a water soluble organic compound; Goehausen (U.S. 5,456,760) discloses cleaning process for electronic and electrical assemblies the composition comprises surfactant, N-methyl-2-pyrrolidone and polyethylene glycol ethers.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Kornakov whose telephone number is (703) 305-0400. The examiner can normally be reached on 9:00am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (703) 308-4333. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872 9310 for regular communications and (703) 872 9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 2450.

Michael Kornakov
Examiner
Art Unit 1746

mk
April 7, 2002


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